To: Huetteman, Tom[Huetteman.Tom@epa.gov]
Cc: Armann, Steve[Armann.Steve@epa.gov]
From: Thomas, Kent
Sent: Thur 4/17/2014 6:47:19 PM
Subject: RE: SFEI Study on PCB caulk in Bay Area Buildings
Klosterhous et al supplemental material EnvironInt 2014.docx
Robson et al Sealant PCB Sources Toronto EnvirInt 2010.pdf

.....
;;;;;
Tom and Steve–

The only other estimate I've seen for PCB mass in building sealants is in a Toronto study (Robson et al., 2010, attached) that is referenced in the SFEI study. There could be other estimates out there that I have not seen.

The Toronto study used – in my opinion - a fairly crude approach for estimation for estimating total PCBs in Toronto building sealants. This resulted in a 'best' estimate of 13,000 kg across Toronto, but ranging from 1600 to 231,000 kg depending on the range of measured PCB concentrations (Table 3) but not including other important uncertainties in the range estimation.

I've attached the supplemental material to SFEI paper that describes their methodology for estimating PCB mass in building sealants. There are some important limitations and uncertainties. The authors discuss some of these on page 4. Aside from uncertainties in building identification and volume estimation, they used PCB in caulk data from Boston and Switzerland, in addition to the samples they analyzed to generate a distribution of concentrations in sealants. And, they base their estimates on a single 'caulk density' value of 55 g/m3 for estimating the total amount of caulk inside and outside a building. That number comes from the Robson study – but there is no citation in Robson et al. about where that number was derived, and no information in SFEI about what extent it might be applicable to buildings in San Francisco.

Kent Thomas

From: Huetteman, Tom
Sent: Thursday, April 17, 2014 11:44 AM
To: Thomas, Kent
Cc: Armann, Steve
Subject: RE: SFEI Study on PCB caulk in Bay Area Buildings

So I should have read further in the SFEI study as I see they address mass. How good are their estimates and do you have mass numbers that you typically reference?

Tom Huetteman, Associate Director

Waste Mgmt Div, USEPA Region 9

415-972-3751

From: Huetteman, Tom

Sent: Thursday, April 17, 2014 8:39 AM
To: Thomas, Kent
Cc: Armann, Steve
Subject: RE: SFEI Study on PCB caulk in Bay Area Buildings

Kent,

Has there been any attempt to do a mass estimate of caulk in buildings? It would be nice to have some crude estimate range or studies that looked at both mass and concentration. Tom

Tom Huetteman, Associate Director

Waste Mgmt Div, USEPA Region 9

415-972-3751

From: Thomas, Kent
Sent: Wednesday, April 16, 2014 2:40 PM
To: Armann, Steve; Huetteman, Tom
Cc: Randell, George; Vendinello, Lynn; Simons, Tom; Hockey, David; Hensley, Amy; Finn, Molly; Tisa, Kimberly; Schulz, Susan; Baylor, Katherine; Beach, John; Kaplan, Mitch; Leach, Ronald; Santos, Carmen; Tyahla, Stephen; Wilson, Patrick
Subject: RE: SFEI Study on PCB caulk in Bay Area Buildings

Thanks for sending the paper, Steve. I had seen some of these results in the previous report this group prepared. Just a couple of comments.

I think they could have done a better job describing the performance of the XRF assessments (and a correlation analysis would have been nice). Personally, I think the most troubling part of that result was the high frequency of relatively high Cl levels by XRF for corresponding much lower levels of PCBs and Cl by GC-MS.

Also, it is hard to judge how good the total PCB inventory estimates are, given that only exterior caulks were sampled but the inventory estimates included both exterior and interior caulks.

Kent Thomas

From: Armann, Steve
Sent: Wednesday, April 16, 2014 10:54 AM
To: Huetteman, Tom
Cc: Randell, George; Thomas, Kent; Vendinello, Lynn; Simons, Tom; Hockey, David; Hensley, Amy; Finn, Molly; Tisa, Kimberly; Schulz, Susan; Baylor, Katherine; Beach, John; Kaplan, Mitch; Leach, Ronald; Santos, Carmen; Tyahla, Stephen; Wilson, Patrick
Subject: FW: SFEI Study on PCB caulk in Bay Area Buildings

Below is a link the San Francisco Estuary Institutes study of PCBs in caulk in buildings in the SF

bay area. This study was commissioned due to concerns that PCBs in building materials were contributing to the PCB loading to SF Bay. The study was conducted on 10 buildings in the area. The study was "blind" in that the researchers did not know which buildings were tested. This was done to avoid the complications associated with knowledge of caulk above 50 ppm.

Interesting conclusions:

∀ Generally consistent with other building studies done in Boston, Toronto, and Switzerland.

∀ 40% of caulk was greater than 50 ppm

∀ Estimate 4.7 kg of PCBs per building in the bay area.

∀ They compared XRF to lab tests. They conclude it could be used for low level screening. I read that the results were poor at best.

∀ Suggest that PCB in caulk less than 10,000 ppm may be due to cross contamination with construction equipment used to apply high concentration caulk.

Steven S. Armann, Manager

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Email: armann.steve@epa.gov

From: Baylor, Katherine
Sent: Tuesday, April 15, 2014 1:29 PM
To: Armann, Steve
Subject: SFEI Study on PCB caulk in Bay Area Buildings

SFEI's Bay Area Building study (6 pages) was just published (February 2014):

http://www.sfei.org/sites/default/files/Klosterhaus%20and%20McKee%20et%20al%202014%20Polychlorinated

Katherine Baylor, PG

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